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ENTOMOLOGY.—*Notes on, and new species of, American moths of the genus Filatima Busck (Gelechiidae: Lepidoptera).*<sup>1</sup> J. F. GATES CLARKE, U. S. Bureau of Entomology and Plant Quarantine.

In this paper I have assigned three species, previously unrecognized by Busck<sup>2</sup> and not placed in his paper on the restriction of *Gelechia*, to *Filatima*. A fourth species, referred to *Filatima*, is herein transferred, and 12 new species are described.

The drawings for this paper were made by the author.

*Filatima procedes*, n. sp.

Figs. 1-1b, 14

Labial palpus shining whitish buff; brush of second segment suffused with drab and irrorate with fuscous; third segment irrorate with blackish fuscous. Antenna whitish buff with blackish-fuscous annulations. Ground color of head, thorax, and forewing whitish buff, the scales tipped with cinnamon-buff and somewhat suffused with fuscous, this combination of color producing a general drab appearance; in the fold, at basal third, an ill-defined cinnamon-buff spot; discal spots, if present, small and blackish fuscous; cilia sordid whitish buff speckled with blackish fuscous; underside with rather conspicuous blackish-fuscous scaling. Hind wing shining whitish basally shading to fuscous apically; cilia yellowish fuscous; curtain scaling from underside of costa present in

male. Legs whitish buff irrorate with blackish fuscous; tibial spurs blackish fuscous outwardly. Abdomen with first three segments yellowish above, remainder fuscous, edged with whitish buff; beneath whitish buff, irrorate with blackish fuscous.

*Male genitalia*.—Asymmetrical. Ventral lobe of left harpe stout with a large, conspicuous, strongly sclerotized tooth on the inner surface just before apex, several smaller teeth on the inner surface, and a large one at the junction of the ventral and dorsal lobes; dorsal lobe slender, fleshy. Right harpe with ventral lobe rather slender, smooth; dorsal lobe slender, fleshy. Gnathos a small hook with a few teeth on the posteroventral edge. Uncus narrow, weak. Aedeagus with a large, sharp tooth, directed forward, on left side, and a thornlike process posteriorly from the right side.

*Female genitalia*.—See Fig. 14.

Alar expanse, 18-20 mm.

*Type*.—U.S.N.M. no. 58257.

*Type locality*.—Presidio, Tex.

*Food plant*.—*Salix exigua* Nutt.

*Remarks*.—Described from the male type, three male and one female paratypes, all from the same locality. The moths emerged 22-X-1943 from larvae collected 17-IX-1943 by J. H. Russell. Paratypes in the U. S. National Museum and the British Museum.

This species is closely related to *F. saliciphaga* (Keifer) but averages lighter in color

<sup>1</sup> Received February 4, 1947.

<sup>2</sup> Busck, A., *Restriction of the genus Gelechia (Lepidoptera: Gelechiidae), with descriptions of new species*. Proc. U. S. Nat. Mus. 86: 563-593. pls. 58-71. 1939.

and smaller in size. In the male genitalia of *saliciphaga* there is a pronounced "shoulder" from the ventral edge of the ventral lobe of each harpe which is entirely lacking in *procedes*, and the toothlike processes of the aedeagus are nearly twice as large in *saliciphaga* as they are in *procedes*.

*Filatima betulae*, n. sp.

Figs. 2-2b, 15

Labial palpus sordid white suffused and heavily overlaid with fuscous; third segment almost wholly dark fuscous with a sprinkling of sordid white scales. Antenna dark fuscous annulated with gray. Head grayish fuscous, the scales broadly tipped with dark fuscous. Thorax and ground color of forewing brown; narrowly along costa, indistinctly on the veins and broadly on dorsum overlaid with dark fuscous-tipped grayish-fuscous scales; at apical fourth and at tornus an indistinct sordid white spot faintly indicating a transverse line; cilia light yellowish fuscous irrorate with blackish fuscous. Hind wing gray shading to fuscous around margins; cilia yellowish fuscous with darker shading at middle; curtain scaling present in male. Legs sordid white suffused and banded with blackish fuscous.

*Male genitalia*.—Asymmetrical. Ventral lobe of left harpe half as broad as long, terminating in three widely separated points; ventral lobe of right harpe ending in a single point. Gnathos a short hook with serrate ventroposterior edge. Aedeagus with prominent lateral point and one stout, pointed cornutus.

*Female genitalia*.—Ostium broad. Ductus bursae sclerotized for almost its entire length. Signum a large 2-pointed plate.

Alar expanse, 19-21 mm.

*Type*.—U.S.N.M. no. 58250.

*Type locality*.—Melrose Highlands, Mass.

*Food plant*.—*Betula populifolia* Marsh.

*Remarks*.—Described from the male type and one female paratype (5-VI and 15-VI-1931). Paratype in the U. S. National Museum.

In genitalia this species is nearest *F. roceliella* Clarke, but differs from it as follows: Both harpes of *roceliella* are nearly symmetrical while those of *betulae* are strongly asymmetrical as shown in the figure.

*Filatima golovina*, n. sp.

Figs. 3-3b, 21

Labial palpus white inwardly on second seg-

ment, pale ochereous in the brush and irrorate with blackish fuscous; third segment white irrorate with blackish fuscous. Antenna blackish fuscous with indistinct narrow annulations. Head sordid white, the tips of the scales narrowly edged with fuscous. Tegula fuscous basally shading to sordid white apically. Thorax and forewing sordid white, the ground color nearly obliterated by fuscous and other markings; from base, inside costa, to and including apex, ochereous scaling gradually broadening to include nearly the whole apical third of wing; a white spot on costa and another on tornus indicate an obsolete transverse fascia; discal spots generally ill-defined or absent, but when present four in number and fuscous (the females are more conspicuously marked than the males): cilia gray to grayish fuscous, irrorate with fuscous. Hind wing shining grayish fuscous basally shading to fuscous around margins; cilia yellowish fuscous; curtain scaling from underside of costa present in male. Legs white, irrorate and banded with blackish fuscous. Abdomen light fuscous above, the segments edged with white posteriorly, except the first three segments which are yellowish; beneath white broadly edged with fuscous ventrolaterally.

*Male genitalia*.—Asymmetrical. Ventral lobe of left harpe strongly curved and studded with small teeth on its inner surface and outer edge. Ventral lobe of right harpe deeply emarginate on ventral edge. Gnathos a short, stout hook with three or four teeth on ventroposterior edge. Aedeagus with a large pointed process from the left side and a small thornlike cornutus on the right.

*Female genitalia*.—The signum, though of the usual type for this genus, is unusually small in this species.

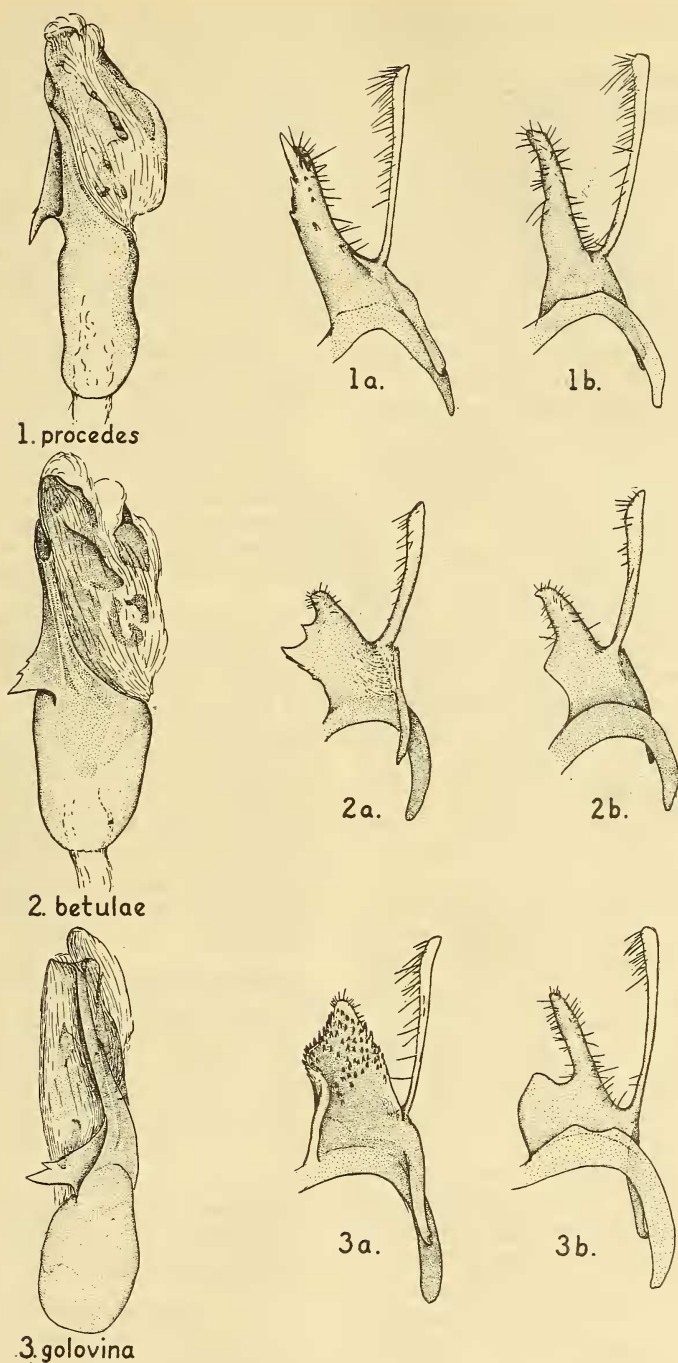
Alar expanse, 18-20 mm.

*Type*.—U.S.N.M. no. 58253.

*Type locality*.—Palm Springs, Calif.

*Remarks*.—Described from the male type, two male and four female paratypes from California as follows: Palm Springs, type male (2-V-1921, Karl R. Coolidge) and female (6-V-1921, Karl R. Coolidge); Dixieland, Imperial County, two males and three females (15-IV to 15-V-1922, O. C. Poling). Paratypes in the U. S. National Museum and the British Museum.

The pattern of this species is similar to that of *sperryi*, but *golovina* is much lighter in color-



## MALE GENITALIA

FIGS. 1-1b.—*Filatima procedes*, n. sp.: 1, Ventral view of aedeagus; 1a, inner surface of left harpe; 1b, outer surface of right harpe.

FIGS. 2-2b.—*Filatima betulae*, n. sp.: 2, Ventral view of aedeagus; 2a, inner surface of left harpe; 2b, outer surface of right harpe.

FIGS. 3-3b.—*Filatima golovina*, n. sp.: 3, Lateral view of aedeagus to show spinous process; 3a, inner surface of left harpe; 3b, outer surface of right harpe.



tion. The two can be distinguished easily by their genitalia.

***Filatima tridentata*, n. sp.**

Figs. 9-9b, 19

Labial palpus ocherous-white suffused and overlaid with fuscous; third segment lightly and finely irrorate with fuscous but lacking annuli. Antenna fuscous with ill-defined lighter annulations. Head, thorax, and forewing yellowish brown; many of the scales of the head and thorax, and a few of the forewing, narrowly tipped with fuscous; basal angle with a conspicuous, oblique black dash; at the end of cell a poorly defined blackish fuscous spot with a scattering of yellowish scales irregularly placed around it; in cell, at basal two-fifths a smaller, similarly colored spot; at apical fourth on costa, a narrow, but distinct, pale spot indicating the position of an obsolete transverse fascia; around apex and termen an indistinct row of small blackish fuscous spots; cilia pale yellowish fuscous irrorate with fuscous. Hind wing grayish fuscous basally shading to dark fuscous around the margins; cilia pale yellowish fuscous with a faint, narrow, fuscous subbasal band; curtain scaling present from underside of costa of male. Legs ocherous-white marked and annulated with blackish fuscous. Abdomen light yellowish fuscous overlaid with black beneath.

*Male genitalia*.—Almost symmetrical. Ventral lobe of the left harpe slightly broader than the corresponding lobe of the right harpe; dorsal and ventral lobes of both harpes of about equal length, approximately one-half the length of the tegumen. Aedeagus with a long, narrow three-pointed plate on right side and a spinous process, turned dorsad, near base on left side. Gnathos a short hook with serrate ventroposterior edge.

*Female genitalia*.—Ostium broad, opening into the wide ductus bursae; ductus bursae sclerotized for about half its length posteriorly and studded with numerous fine spines and minute scobinations. Bursa copulatrix with a very wide two-pointed signum; ductus seminalis from a small posteroventral evagination of the bursa copulatrix.

Alar expanse, 20-23 mm.

*Type*.—U.S.N.M. no. 58249.

*Type locality*.—Snow Creek, Riverside County, Calif.

*Food plant*.—"Willow."

*Remarks*.—Described from the male type

and two female paratypes, all reared by Commander C. M. Dammers. The emergence dates are: Male type, 21-X, and female, 21-X-1933 (Snow Creek), and female, 26-IX-1938 (Riverside). Paratypes in the U. S. National Museum.

This species belongs in the *serotinella-abactella* group and probably is more nearly related to *abactella*. The yellowish-brown forewing will distinguish *tridentata* from the other species of the group.

***Filatima shastella* (Gaede), n. comb.**

*Gelechia albifemorella* Clarke (not Hoffmann), Can. Ent. 64: 65, pl. 2, fig. 6, pl. 3, fig. 5. 1932.

—McDunnough, Check list of the Lepidoptera of Canada and the United States of America (part 2, Microlepidoptera). No. 8123. 1939.

*Gelechia shastella* Gaede, in Bryk, Lepidopterorum Catalogus, pt. 79: 212. 1937.

*Filatima clarkella* Busck, Proc. U. S. Nat. Mus. 86: 576. 1939. (New synonymy.)

When I described this species I was unaware of the previous use of the name *albifemorella* by Hoffmann (Ent. Zeit. Stettin 28: 204. 1867), and thus created a primary homonym. Busck brought this to my attention several years later, proposed the new name *clarkella*, and assigned the species to *Filatima* where it belongs. At that time (1939) Busck had not seen part 79 of the Lepidopterorum Catalogus in which Gaede proposed the name *shastella* for *albifemorella* Clarke. Thus Busck's name falls as a synonym of *shastella*.

***Filatima prognosticata* (Braun), n. comb.**

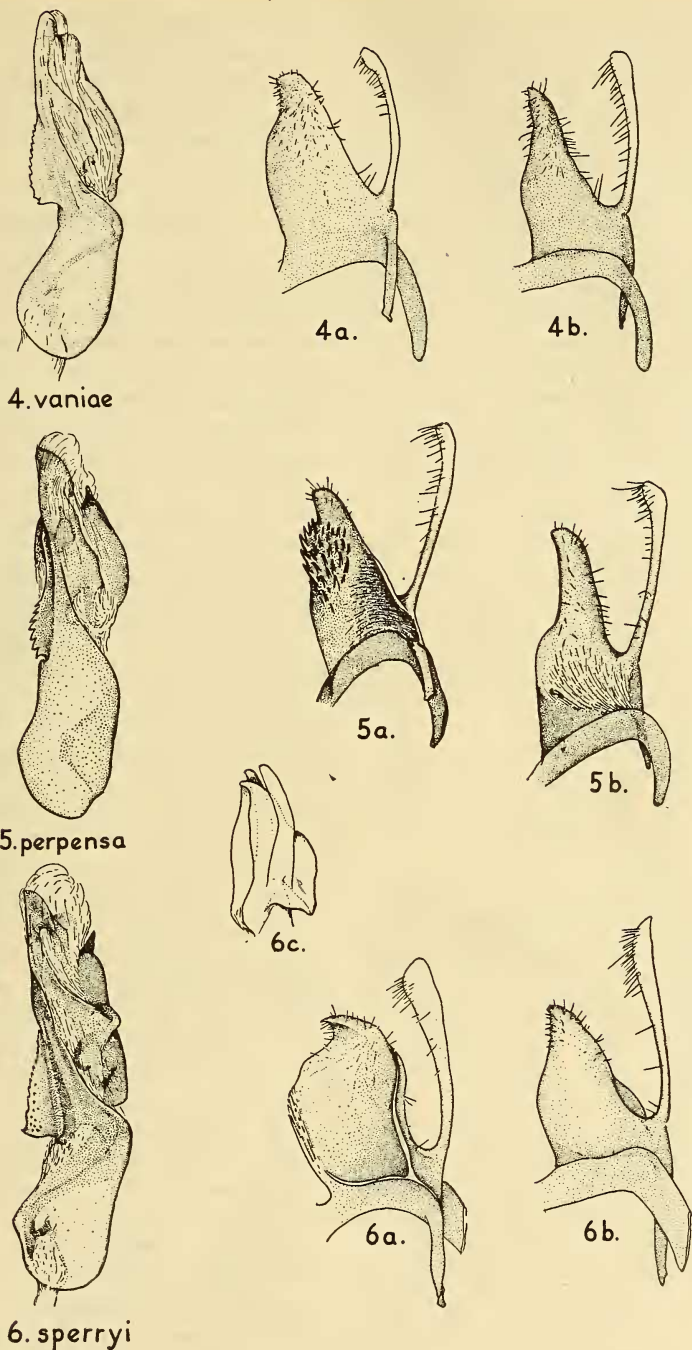
*Gelechia prognosticata* Braun, Trans. Amer. Ent. Soc. 51: 195. 1925.—Busck, Proc. U. S. Nat. Mus. 86: 589. 1939.—McDunnough, Check list of the Lepidoptera of Canada and the United States of America (part 2, Microlepidoptera), No. 8119. 1939.

Dr. Annette F. Braun has compared the type of her species with *vaniae* (described below) and confirmed the close relationship of the two. I hereby assign *prognosticata* to *Filatima*.

***Filatima vaniae*, n. sp.**

Figs. 4-4b, 17

Labial palpus white inwardly, suffused and irrorate with fuscous in brush and exteriorly on second segment; third segment almost entirely overlaid with blackish fuscous. Antenna fuscous with poorly defined lighter annulations. Head pale gray, the scales tipped with fuscous. Thorax and forewing very pale gray to whitish,



## MALE GENITALIA

FIGS. 4-4b.—*Filatima vaniae*, n. sp.: 4, Ventral view of aedeagus; 4a, inner surface of left harpe; 4b, outer surface of right harpe.

FIGS. 5-5b.—*Filatima perpensa*, n. sp.: 5, Ventral view of aedeagus; 5a, inner surface of left harpe; 5b, outer surface of right harpe.

FIGS. 6-6c.—*Filatima sperryi*, n. sp.: 6, Ventral view of aedeagus; 6a, inner surface of left harpe; 6b, outer surface of right harpe; 6c, ventrolateral aspect of uncus showing lateral rods.

the scales tipped with fuscous; from base to apex, in the costal third, is an ochraceous-tawny shade, the extent of which varies individually; at apical fourth is an ill-defined whitish transverse fascia; in the fold a dark fuscous, elongate dash is edged with tawny scales; discal spot at end of cell fuscous, small; remaining spots obsolete, or when present indistinct, fuscous; cilia pale fuscous irrorate with darker fuscous. Hind wing light grayish fuscous narrowly edged with dark fuscous; cilia pale fuscous; curtain scaling from the underside of costa present in male. Legs white, densely dusted and banded with blackish fuscous. Abdomen with first three segments yellowish above, remainder light fuscous edged posteriorly with sordid white; beneath white dusted and suffused with dark fuscous.

*Male genitalia*.—Asymmetrical. Left harpe with ventral lobe nearly twice the size of the corresponding member of the right harpe. Gnathos a long curved hook. Aedeagus with a serrate carinate process on the left side and an elongate plate with two small thornlike teeth on the right side.

*Female genitalia*.—See Fig. 17.

Alar expanse, 15–18 mm.

*Type*.—U.S.N.M. no. 58255.

*Type locality*.—Murray, Utah.

*Food plant*.—*Ribes* sp.

*Remarks*.—Described from the male type, one male and five female paratypes all from the type locality. The moths were reared from larvae on *Ribes* collected by P. H. Timberlake. The emergence dates are from July 1 to July 12, 1913. Paratypes in the U. S. National Museum, the British Museum, and in the collection of Dr. Annette F. Braun, Cincinnati, Ohio.

This species is close to *prognosticata* Braun, and the larvae feed on the same food plant. Dr. Braun has been kind enough to compare *vaniae* with her species and has written me as follows: "In *prognosticata* the scales dorsad of the fringe on the lower side of the hind wing of the male, are much longer than in your specimen, with the scales overlapping; this difference is most noticeable between veins 1c and 2. Your specimen has these scales short and not overlapping. Otherwise the specimens, as to wing markings and palpi, are identical, except that yours are smaller and paler. The scaling of the hind wing of yours is more like that of *xanthuris* Meyrick than it is like *prognosticata*.

It would appear that they are distinct, in spite of the same food plant."

*F. prognosticata* averages considerably larger than *vaniae*, the largest specimen of the latter just attaining the size of the smallest specimen of the former.

### *Filatima perpensa*, n. sp.

Figs. 5–5b

Labial palpus sordid white, mottled, and overlaid with blackish fuscous. Antenna blackish fuscous. Head varying from grayish to light fuscous, the scales tipped with dark fuscous. Thorax and forewing fuscous, streaked and overlaid with brownish-ocherous scales; tegula tipped with brownish ocherous; basal angle marked with a black dash, but this obsolete in some specimens; on anal vein at basal third, slightly above this in cell and at end of cell, small blackish fuscous spots; the one at the end of cell frequently in the form of a short, outwardly oblique, broad dash and all of the spots obsolete in some specimens; at apical fourth an ill-defined pale costal spot indicates an obsolete transverse line; cilia pale fuscous irrorate with fuscous. Hind wing dark fuscous; cilia pale fuscous; curtain scaling on underside present in male. Legs blackish fuscous annulated and banded with pale yellowish fuscous. Abdomen blackish fuscous with a broad, sordid ocherous white, longitudinal median area.

*Male genitalia*.—Asymmetrical. Ventral lobe of left harpe broader than the corresponding member of the right harpe and studded with short, sharp teeth on its inner surface. Aedeagus with a serrate carinate process on the left side and two strong thornlike cornuti on the right side.

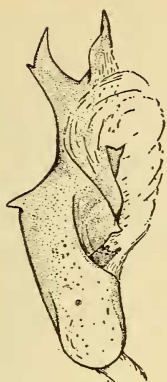
Alar expanse, 18–22 mm.

*Type*.—U.S.N.M. no. 58248.

*Type locality*.—The Geysers, Sonoma County, Calif.

*Remarks*.—Described from the male type (21-VI-1938) and 14 male paratypes from California as follows: Male, The Geysers, Sonoma County (21-VI-1938); 7 males, Pinnacles, San Benito County (May and June dates); male, Beaumont (21-VII-1935); 2 males, Las Lomas Ranch, Sonoma County (30-V-1936); male, Hawthorne (13-VI-1937); male, Palm Springs (10-VI-1937); male, Glen Ellen (10-VII-36). All were collected by E. C. Johnston.



7. *obidenna*

7a.



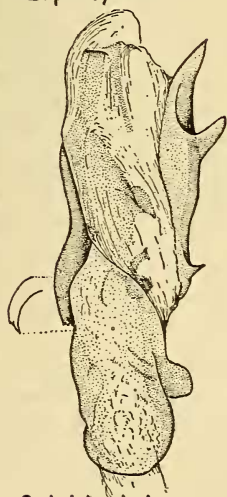
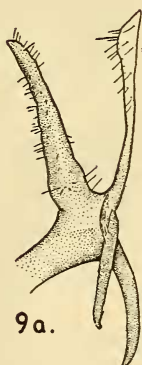
7b.

8. *platyochra*

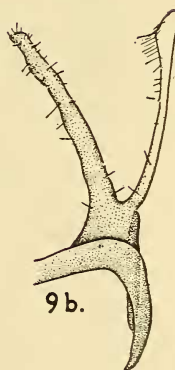
8a.



8b.

9. *tridentata*

9a.



9b.

## MALE GENITALIA

FIGS. 7-7b.—*Filatima obidenna*, n. sp.: 7, ventral view of aedeagus; 7a, inner surface of left harpe; 7b, outer surface of right harpe.

FIGS. 8-8b.—*Filatima platyochra*, n. sp.: 8, Ventral view of aedeagus; 8a, inner surface of left harpe; 8b, outer surface of right harpe.

FIGS. 9-9b.—*Filatima tridentata*, n. sp.: 9, Ventral view of aedeagus; 9a, inner surface of left harpe; 9b, outer surface of right harpe.

Paratypes in the U. S. National Museum, the British Museum, and the E. C. Johnston collection.

The variability of this species renders it difficult to separate on superficial characters, but the spinose inner surface of the left harpe distinguishes it from any other described *Filatima* except *golovina*. A comparison of Figs. 3 and 5 shows clearly the differences between *golovina* and *perpensa*.

The nearest relatives are *F. serotinella* (Busck) and *F. gilvomaculella* (Clem.), but the ventral edge of the ventral lobe of the left harpe of these two is serrate, a character not found in *perpensa*.

***Filatima sperryi*, n. sp.**

Figs. 6-6c

Labial palpus sordid white so heavily overlaid with dull black as to obscure the ground color; apex of second segment narrowly edged with sordid white. Antenna blackish fuscous with indistinct, narrow, lighter annulations. Head and thorax cinerous, the scales broadly tipped with dark fuscous; face sordid white. Forewing with extreme costal edge, a narrow line around apex and termen and a broad, elongate area from base of wing to tornus, blackish fuscous; remainder of wing buckthorn brown; on costa and tornus a small whitish spot indicating the position of an obsolete transverse fascia; discal spots absent; in some specimens is a dusting of dark fuscous scaling in the light apical portion of the wing; cilia grayish fuscous with blackish fuscous irroration. Hind wing pale fuscous basally shading to fuscous apically; cilia pale fuscous with ill-defined, darker, narrow bands; curtain scaling from underside of costa present in male. Legs shining creamy white overlaid and banded with blackish fuscous. Abdomen fuscous above, the segments edged with whitish posteriorly; creamy white below with fuscous laterally.

*Male genitalia*.—Asymmetrical. Left harpe with a very broad ventral lobe, the ventral edge of which is rugose; dorsal lobe slender, weak, dilated distally. Right harpe with ventral lobe triangular and with a carinate process from base; dorsal lobe slender, weak. Gnathos a long, slender hook. Uncus with narrow, flattened, lateral, sclerotized processes projecting beyond distal end. Aedeagus with long sawlike process on left side and an elongate, narrow sclerotized

plate with two teeth (occasionally one by obsolescence), one at each end.

Alar expanse, 18-21 mm.

*Type*.—U.S.N.M. no. 58251.

*Type locality*.—Barton Flats,<sup>3</sup> Calif.

*Remarks*.—Described from the male type and three male paratypes as follows: California: Barton Flats (4-VIII-1945, A. L. Melander); Nevada: White Mountains (10-VIII-1937, A. Little); Utah: Eureka (16-VII-1911 and 28-VII-1911, Tom Spalding). Paratypes in the U. S. National Museum, the British Museum, and in the collection of John L. and Grace H. Sperry (Nevada specimen) of Riverside, Calif.

I take pleasure in naming this species for my friend John L. Sperry, from whom the type and the Nevada specimen were received. Mr. Sperry has contributed consistently and greatly to our knowledge of western Lepidoptera.

***Filatima vaccinii*, n. sp.**

Figs. 12-12b, 20

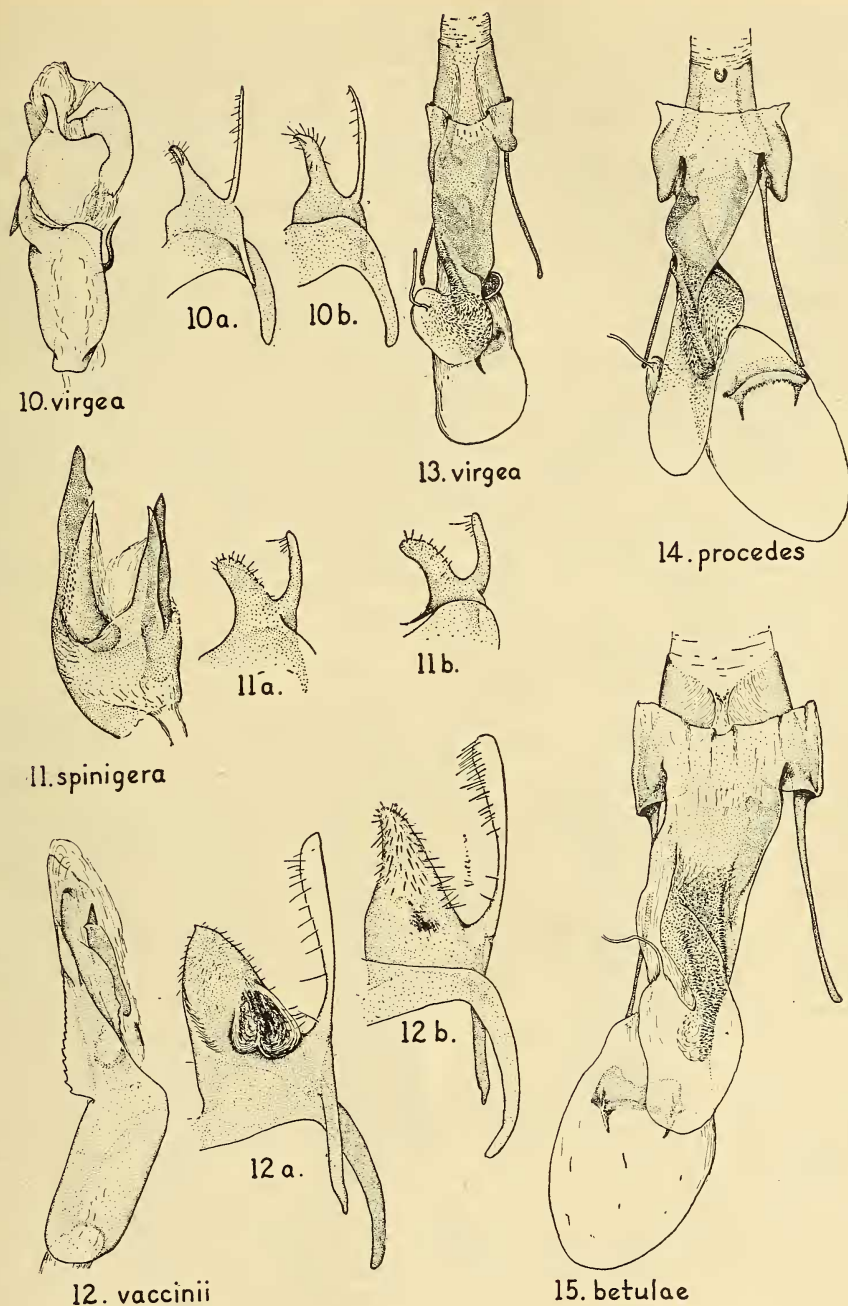
Labial palpus white inwardly on second segment, suffused and heavily overlaid with dark gray and blackish fuscous in the brush and outwardly; third segment with only a fine line of white visible on the inner side. Antenna fuscous with pale grayish annulations. Head, thorax, and forewing gray, each scale tipped with fuscous, the moth appearing gray; four small spots on fold and in the cell fuscous if present, but only faintly indicated in one specimen; at apical fourth, from costa to tornus, an ill-defined narrow, outwardly convex transverse fascia; cilia gray irrorate with fuscous. Hind wing fuscous with a brassy hue, darker apically than basally; cilia light fuscous; curtain scaling from underside of costa present in male. Legs shining white, overlaid, and banded with blackish fuscous.

*Male genitalia*.—Asymmetrical. Left harpe with large concavity on inner surface near junction of ventral and dorsal lobes. Ventral lobe of right harpe narrow, triangular, smooth. Gnathos a large hook, abruptly curved distally. Aedeagus with dentate carinate process on left side and elongate, sclerotized plate with one thornlike process distally on right side.

*Female genitalia*.—See Fig. 20.

<sup>3</sup> The exact location of Barton Flats is not clear, but presumably it refers to the locality in Fresno County, near Fresno.





## MALE AND FEMALE GENITALIA

FIGS. 10-10b.—*Filatima virgea*, n. sp.: 10, Ventral view of aedeagus; 10a, inner surface of left harpe; 10b, outer surface of right harpe.

FIGS. 11-11b.—*Filatima spinigera*, n. sp.: 11, Ventral view of aedeagus; 11a, inner surface of left harpe; 11b, outer surface of right harpe.

FIGS. 12-12b.—*Filatima vaccinii*, n. sp.: 12, Ventral view of aedeagus; 12a, inner surface of left harpe; 12b, outer surface of right harpe.

FIG. 13.—*Filatima virgea*, n. sp.: Female genitalia, ventral view.

FIG. 14.—*Filatima procedes*, n. sp.: Female genitalia, ventral view.

FIG. 15.—*Filatima betulae*, n. sp.: Female genitalia, ventral view.

Alar expanse, 16–18 mm.

*Type*.—U.S.N.M. no. 58254.

*Type locality*.—Toms River, N. J.

*Food plant*.—*Vaccinium vacillans* Solander.

*Remarks*.—Described from the male type, one male and one female paratypes all from the same locality. The moths emerged 30-VI-1923 from larvae collected by H. B. Scammell. Paratypes in the U. S. National Museum.

***Filatima platyochra*, n. sp.**

Figs. 8–8b, 16

Labial palpus white with slight fuscous dusting exteriorly on the second segment and more profuse dusting on the third segment. Antenna fuscous with paler annulations. Head, thorax, and ground color of forewing sordid white heavily overlaid with drab; face, and a spot on each side of the thorax posterolaterally, white; on costa and tornus white spots indicate an obsolete transverse line at apical fourth; a dash in fold, about middle, and discal spots at center and end of cell, sepia, broadly edged with white; along costa and following veins some brownish ocherous scales; cilia gray to pale fuscous irrorate with fuscous. Hind wing pale shining gray basally shading to fuscous around the margins; cilia pale fuscous with two darker bands faintly indicated; curtain scaling from underside of costa present in male. Legs white lightly dusted with fuscous; tarsi banded with fuscous. Abdomen white except for dorsal surfaces of first three segments, which are yellowish, and narrow fuscous shading ventrolaterally the entire length of the abdomen.

*Male genitalia*.—Asymmetrical. Left harpe divided into three fingerlike parts. Right harpe divided into three parts, the ventral one of which is the shorter and the dorsal arm the longer. Gnathos a short stout hook with serrate posteroventral edge. Aedeagus with a serrate edge, bearing three teeth, on the left and a sclerotized plate on the right having a thornlike tooth distally and broad, divided process proximally.

*Female genitalia*.—See Fig. 16.

Alar expanse, 17–18 mm.

*Type*.—U.S.N.M. no. 58253.

*Type locality*.—Dixieland, Imperial County, Calif.

*Remarks*.—Described from the male type and two female paratypes, all from the type locality. These were collected April 15–30, 1922

(type and one paratype), and May 1–15, 1922 (one paratype), by O. C. Poling. Paratypes in the U. S. National Museum.

I know of no other described *Filatima* with male genitalia comparable to those of *platyochra*.

***Filatima frugalis* (Braun), n. comb.**

*Gelechia frugalis* Braun, Trans. Amer. Ent. Soc. 51: 194. 1925.—Busck, Proc. U. S. Nat. Mus. 86: 589. 1939.—McDunnough, Check list of the Lepidoptera of Canada and the United States of America (part 2, Microlepidoptera), No. 8118. 1939.

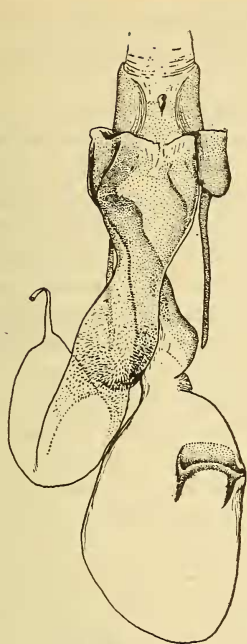
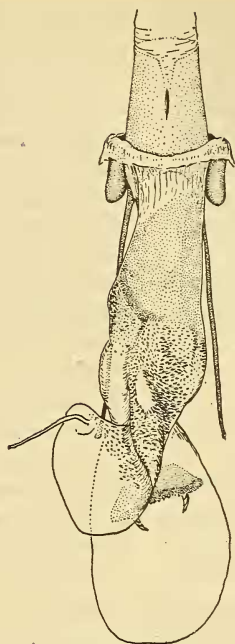
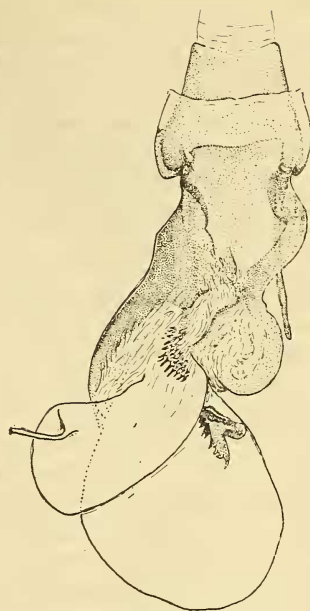
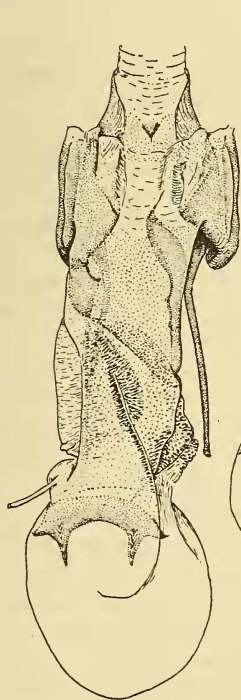
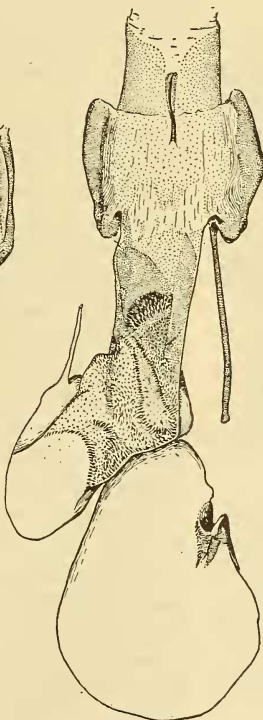
Busck did not assign this species to its proper genus when he restricted the use of *Gelechia*. Dr. Braun has written, "The 'curtain scaling' is present in *frugalis* . . .," and for this reason I assign it to *Filatima*. I have not studied the genitalia of *frugalis* and, therefore, cannot place it in its proper relationship to other members of the genus.

***Filatima virgea*, n. sp.**

Figs. 10–10b, 13

Labial palpus gray inwardly on the second segment, sooty black in the brush and exteriorly; apex of the second segment white; third segment cinereous heavily overlaid with sooty black. Antenna blackish fuscous with indistinct gray annulations. Head, thorax, and forewing cinereous, the scales tipped with dark gray; along costa are scattered white scales; at apical fourth an ill-defined white fascia extends to tornus; in the cell, from middle of the wing to the end of cell, a conspicuous black dash turns at the end of cell and extends broadly, but less distinctly to tornus just inside the termination of the white fascia; from the outer end of the black dash an elongate patch of light sayal brown extends across the white transverse fascia; along costa and in fold are narrow, indistinct streaks of sayal brown; apex of wing purplish fuscous; cilia dark cinereous, irrorate with black. Hind wing gray basally shading to dark fuscous apically; cilia light fuscous; curtain scaling from the underside of costa, present in male. Legs creamy white strongly overlaid with sooty black. Abdomen above with first three segments sordid yellowish, remainder light fuscous; beneath creamy white irrorate and edged laterally with sooty black.

*Male genitalia*.—Almost symmetrical. Harpes

16. *platyochra*17. *vaniae*18. *obidenna*19. *tridentata*20. *vaccinii*21. *golovina*

FIGS. 16-21.—Female genitalia, ventral aspect, of: 16, *Filatima platyochra*, n. sp.; 17, *Filatima vaniae*, n. sp.; 18, *Filatima obidenna*, n. sp.; 19, *Filatima tridentata*, n. sp.; 20, *Filatima vaccinii*, n. sp.; 21, *Filatima golovina*, n. sp.



broad basally abruptly narrowed into a slender ventral lobe and a tenuis dorsal member. Uncus dilated posterodorsally and with a thin hood extending well forward over the tegumen. Gnathos a moderately stout hook with a few small teeth on the posteroventral edge. Aedeagus rather atypical with a peculiar slender extension from right side near middle (see Figs. 10-10b).

*Female genitalia*.—Normal for group except the signum has only one long curved, thornlike process instead of two.

Alar expanse, 15-18 mm.

*Type*.—U.S.N.M. no. 58258.

*Type locality*.—Presidio, Tex.

*Food plant*.—*Acacia vernicosa* Standl.

*Remarks*.—Described from the male type, one male and five female paratypes all from the type locality. All specimens bear the date 8-XI-1944 (emergence date ?) and were reared from larvae collected by J. H. Russell. Paratypes in the U. S. National Museum and the British Museum.

***Filatima spinigera*, n. sp.**

Figs. 11-11b

Labial palpus creamy white; second segment narrowly pale fuscous exteriorly at base; third segment lightly and minutely irrorate with pale fuscous. Antenna fuscous. Head creamy white. Thorax and forewing sordid white to cinereous variously irrorate and marked with fuscous; costa, to apical third rather strongly, but narrowly, overlaid with fuscous; at apical third a poorly defined white spot is preceded by a small, fuscous blotch; around apex and along termen a row of indistinct, small fuscous spots is terminated, slightly before tornus, by an ill-defined, fuscous, outwardly oblique dash confluent with the discal spot at end of cell; in center of cell a small fuscous spot; both discal cell spots preceded and followed by light yellowish brown scales; cilia light yellowish fuscous irrorate with fuscous. Hind wing shining silvery white; cilia light yellowish fuscous; curtain scaling from underside of costa of male absent. Legs creamy white overlaid with fuscous. Abdomen sordid white lightly marked with fuscous beneath; anal tuft shining white.

*Male genitalia*.—Symmetrical. Dorsal lobe of harpe slender, short, tapering to a point and scarcely exceeding in length the thick fleshy ventral lobe. Aedeagus consisting of four

stout, thornlike processes arising from a common base. Gnathos a short stout hook.

Alar expanse, 20-22 mm.

*Type*.—U.S.N.M. no. 58247.

*Type locality*.—Mojave Desert, near Llano, Calif.

*Remarks*.—Described from the male type and seven male paratypes from California as follows: Three paratypes from the type locality (4-IV-1938, Dr. John A. Comstock); one, La Puerta Valley (March 1); one, Dixieland, Imperial County (March 1-15, 1922, O. C. Poling); one, Essex (12-IV-1938) and one, Riverside (8-III-1934). The last two were collected by Grace H. and John L. Sperry.

Paratypes in the U. S. National Museum, the Los Angeles Museum, the British Museum, and in the collection of Grace H. and John L. Sperry, Riverside, Calif.

In the species group of the genus, to which *spinigera* belongs, are two other species, namely, *F. natalis* (Heinrich) and *F. inqui-linella* (Busck). *F. spinigera* is nearest to *natalis* but can be distinguished from it by the short slender dorsal lobe of the harpe.

***Filatima obidenna*, n. sp.**

Figs. 7-7b, 18

Labial palpus chalky white with blackish fuscous in the brush and completely overlaid with the same color exteriorly; third segment profusely irrorate with blackish fuscous. Head and thorax cinereous, the scales tipped with fuscous; face sordid white. Ground color of forewing dark fuscous; costal fourth of wing, from base to apical fourth, white with fuscous irrorations; extreme base of costa and two or three small spots within the white area near base, black; at basal fifth and middle the white costal color projects obliquely and transversely as incomplete fasciae to or slightly beyond fold; at apical fourth the white color extends across the wing to tornus as an ill-defined transverse fascia; along the inner margin of the white costal area is irregular longitudinal olivaceous scaling; cilia pale fuscous with fuscous irrorations. Hind wing pale shining grayish fuscous basally shading to fuscous apically; cilia pale fuscous, darker apically; curtain scaling from underside of costa absent. Legs creamy white overlaid and banded with fuscous. Abdomen with first three segments yellowish above, remainder sor-

did whitish somewhat infuscated; beneath fuscous with a narrow irregular white central area.

*Male genitalia*.—Almost symmetrical. Ventral lobes of both harpes greatly reduced, dorsal members slender, pointed. Gnathos a long, slender curved process. Uncus slender, divided apically. Aedeagus with strongly sclerotized, spinous processes on the left side, and one thornlike process on the right side.

*Female genitalia*.—Signum with a single long dentate process.

Alar expanse, 17–20 mm.

*Type*.—U.S.N.M. no. 58252.

*Type locality*.—Paradise, Cochise County, Ariz.

*Remarks*.—Described from the male type, three male and four female paratypes from Arizona as follows: Paradise, Cochise County,

four males, two females (April 1–7; no year or collector); Redington, two females (no further data). Paratypes in the U. S. National Museum and the British Museum.

Of the species described in this paper *obidenna* is nearest to *virgea*, but is probably more nearly related to *albicostella* Clarke.

*Fascista bimaculella* (Chambers), n. comb.

*Gelechia bimaculella* Chambers, Can. Ent. 4: 108. 1872.

*Gelechia* (? *Lila*) *ternariella* Zeller, Verh. zool.-bot. Ges. Wien 23: 264. 1873.

*Gelechia sylvaecolella* Chambers, U. S. Geol. Geogr. Surv. Terr. Bull. 4: 86. 1878.

*Filatima bimaculella* (Chambers) Busck, Proc. U. S. Nat. Mus. 86: 576. 1939.

Busck referred this species to *Filatima*, but a study of the genitalia reveals that *bimaculella* should be assigned to *Fascista*.

ICHTHYOLOGY.—*American species and subspecies of Bathygobius, with a demonstration of a suggested modified system of nomenclature.*<sup>1</sup> ISAAC GINSBURG, U. S. Fish and Wildlife Service. (Communicated by ELMER HIGGINS.)

The chief aim of this paper is to characterize briefly the American species and subspecies of fishes belonging to the genus *Bathygobius* and formally establish the names for these categories. The conclusions here epitomized are based on a detailed study of samples of the American populations<sup>2</sup> comprising, in the aggregate, over 800 specimens. The data have been tabulated, and of the characters studied the main ones of those that have proved pertinent to a taxonomic division of the populations are here employed. Some of the most important characters here used were, either altogether or partly, not taken into account by previous authors. Characters determined in this study which proved to be of secondary importance, and size and sex differences in proportional measurements (which are sometimes considerable), are generally omitted in this preliminary, condensed account. The populations of *Bathygobius* are here classified in accordance with

what seems to be the proper interpretation of the totality of my voluminous data. The names of the taxonomic categories here established will prove to be of much help in the further study of the populations, by the proper labeling of the considerable amount of permanently preserved museum material that has been studied, and their use in discussion and correspondence.

*Bathygobius* is in an early stage of speciation at the present time level. The divergence of the species is of a low degree of magnitude in general. The divergence of some of the closely related and immediately contrasting populations is near the borderline between species and subspecies, and they may be designated either as full species or as subspecies, depending on a subjective estimate made by a given author. Furthermore, the species and subspecies are more or less heterogeneous, sometimes markedly so. Every minor local population shows its distinctive frequency distribution in one or more characters. The divergences of the local populations are of different degrees of magnitude and it is difficult to draw a line between the subspecies and the next lower categories. As a consequence, the proper

<sup>1</sup> Received February 14, 1947.

<sup>2</sup> The term "population" is used throughout this paper in the sense previously defined by me (Copeia 1937 (3): 185). That is, it is a general convenient term used to cover any natural group of individuals of species rank or lower.